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Subject Review

(with Ethics of IT Professionals)

CSIT114 / 814: Systems Analysis



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AUSTRALIA

Ethics of IT Professionals

w.r.t. Australian Computer Society (ACS) Code of Ethics

Ethics case study 1

“Better blow the whistle,” says Roy, your friend and project teammate at Final Four Industries. “The project is out of control, and you know it!” “Maybe so,” you respond, “But that’s not my call—I’m not the project manager.” What you do not say is that Stephanie, the project manager, feels like her career is on the line and she is reluctant to bring bad news to management at this time. She honestly believes that the project can catch up, and says that a bad report on a major project could result in bad publicity for the firm and frighten potential customers.

To be fair, the next management progress report is scheduled in three weeks. It is possible that the team could catch up, but you doubt it. You wonder if there is an ethical question here: Even though the report is not due yet, should a significant problem be reported to management as soon as possible? You are concerned about the issue, and you decide to discuss it with Stephanie. What will you say to her?

Ethics case study 2

SCENARIO 1: Jamie just completed a routine security audit on the company's information systems, and she found several areas of vulnerability. For example, file permissions have not been updated in some time, no comprehensive password policy exists, and network traffic is not fully encrypted. She noted these areas, among others, in a report to Tamika, her supervisor. The report included specific recommendations to fix the problems.

Tamika responded by saying that budgets are tight right now, and she could not approve Jamie's requests to resolve these issues. As an IT professional, Jamie is very uncomfortable with the risk level, but she has been unable to sway Tamika. When Jamie discussed the situation with her friend, Ethan, he said, "Why worry about it? If it's good enough for Tamika, it should be good enough for you."

What do you think of Ethan's advice, and why? Is this an ethical question? If Jamie still is uncomfortable, what are her options?

The ACS Code of Ethics is part of the ACS Constitution. As an ACS member you must uphold and advance the honour, dignity and effectiveness of being a professional. This entails, in addition to being a good citizen and acting within the law, your adherence to the following Society values:

1 The Primacy of the Public Interest

You will place the interests of the public above those of personal, business or sectional interests.

2 The Enhancement of Quality of Life

You will strive to enhance the quality of life of those affected by your work.

3 Honesty

You will be honest in your representation of skills, knowledge, services and products.

4 Competence

You will work competently and diligently for your stakeholders.

5 Professional Development

You will enhance your own professional development, and that of your colleagues and staff.

6 Professionalism

You will enhance the integrity of the Society and the respect of its members for each other.

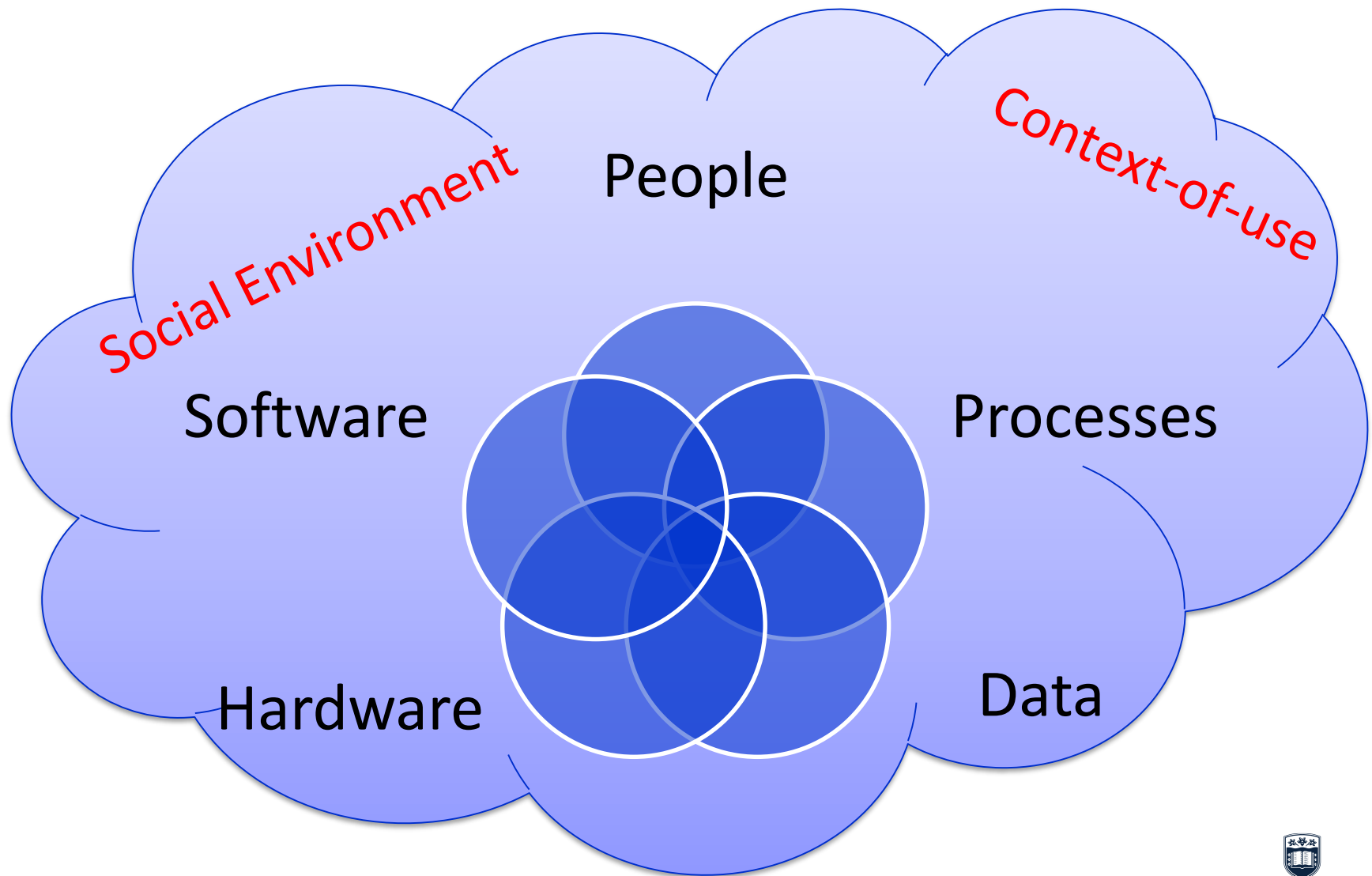
<https://www.acs.org.au/content/dam/acs/rules-and-regulations/Code-of-Ethics.pdf>

Subject review



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What is an Information System?



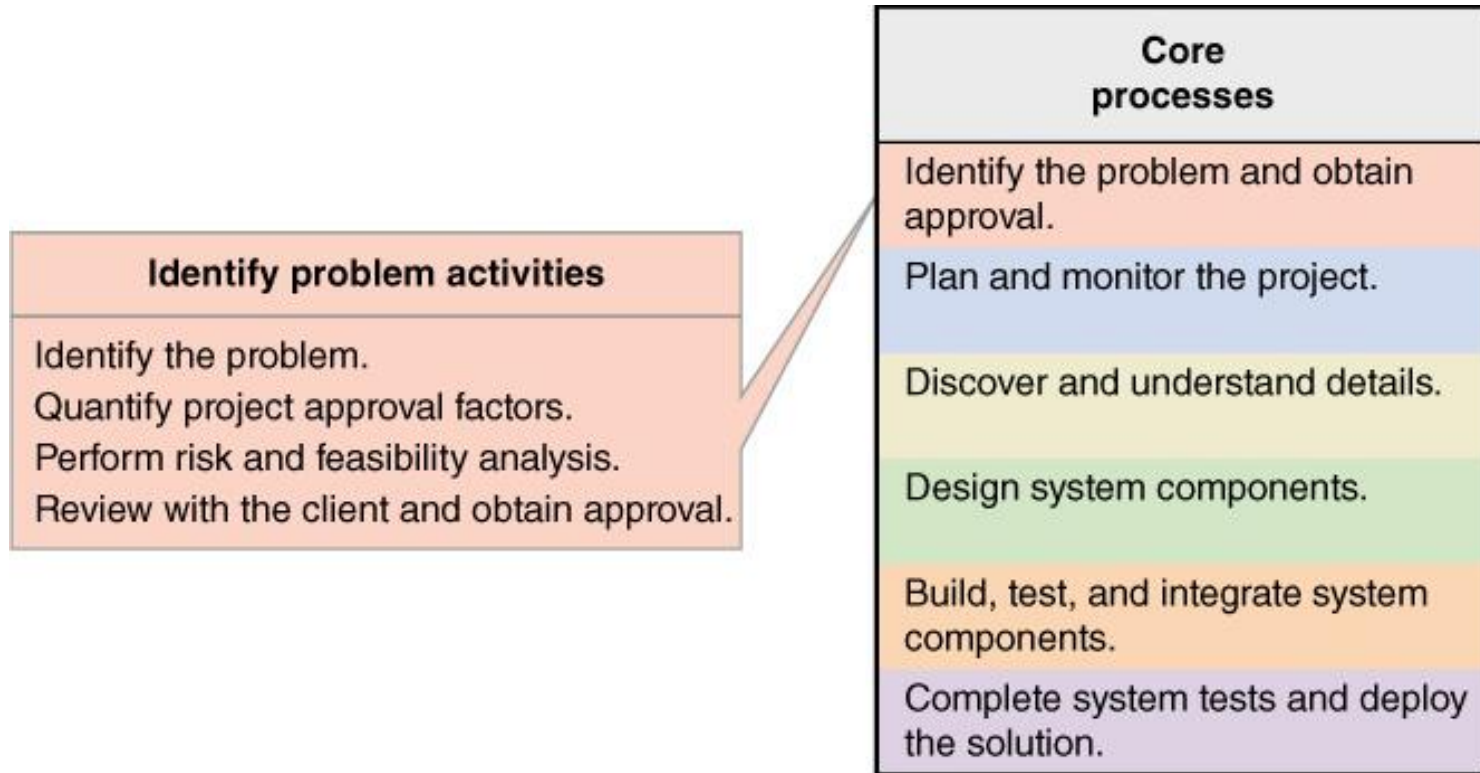
System Development Life Cycle (SDLC)

The process consisting of all activities required to build, launch, and maintain an information system. Six core processes are:

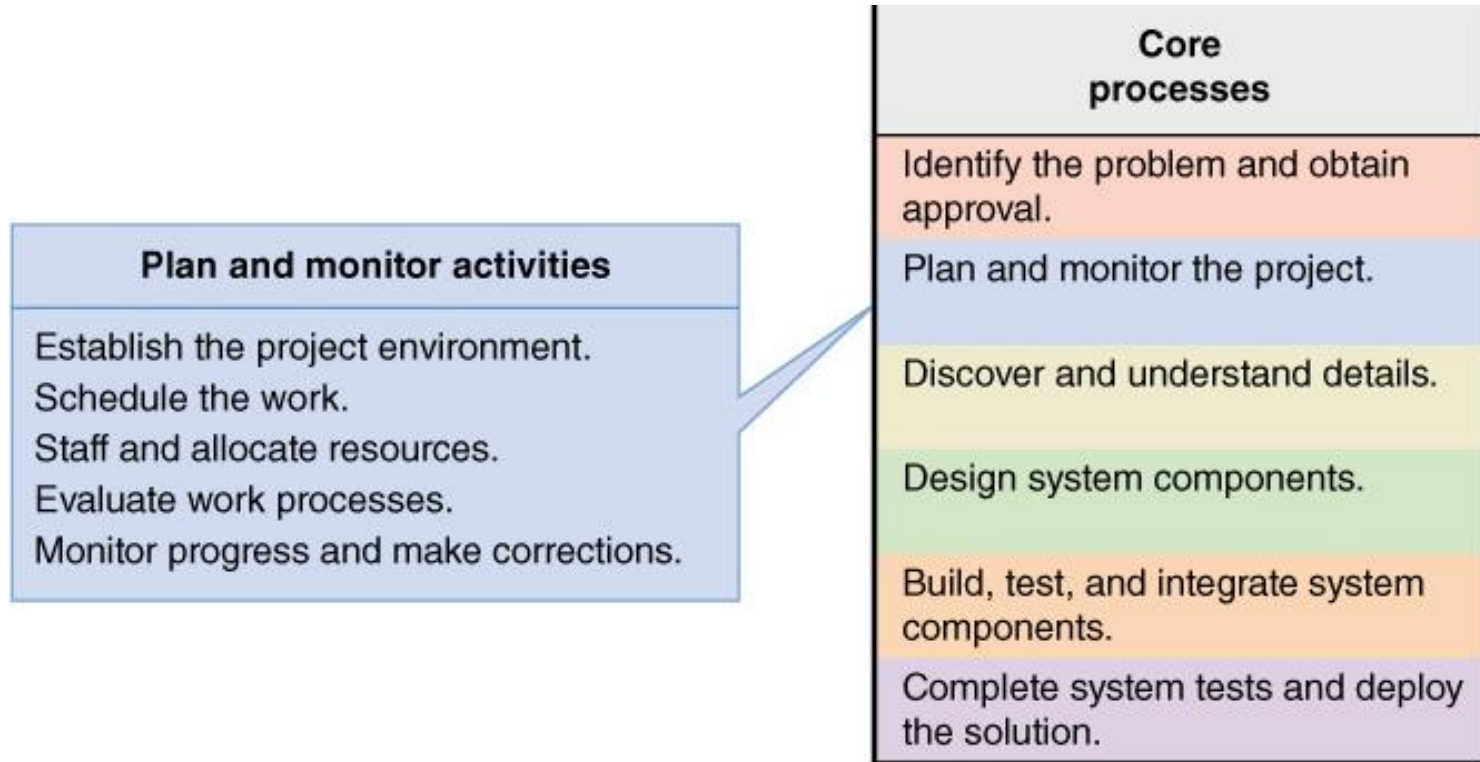
1. Identify the problem or need and obtain approval
2. Plan and monitor the project
3. Discover and understand the details of the problem or need
4. Design the system components that solve the problem
5. Build, test, and integrate system components
6. Complete system tests and then deploy the solution



System Development Life Cycle (SDLC)



System Development Life Cycle (SDLC)



The System Development Life Cycle (SDLC)

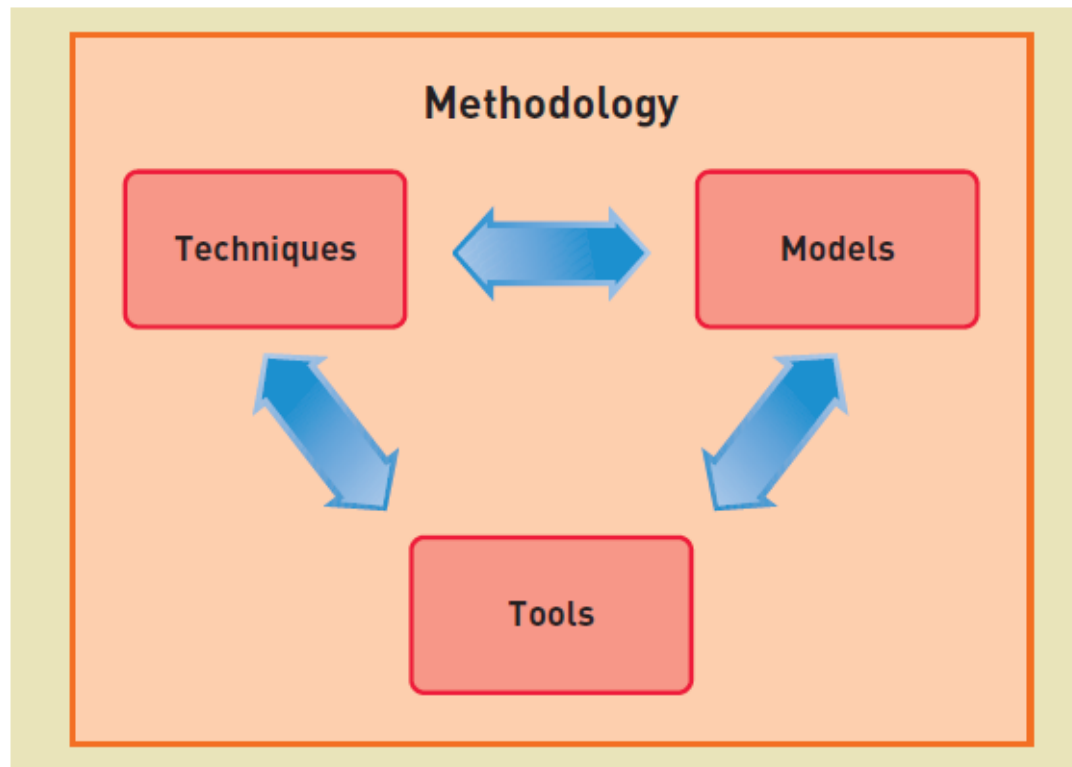
- **Predictive Approach**
- Waterfall model
- Assumes the project can be planned in advance and that the information system can be developed according to the plan
- *Requirements are well understood and/or low technical risk*

The System Development Life Cycle (SDLC)

- **Adaptive Approach**
- Iterative model
- Assumes the project must be more flexible and adapt to changing needs as the project progresses
- *Requirements and needs are uncertain and/or high technical risk*

Methodologies, Models, Tools, and Techniques

- A (system development) **Methodology** includes a collection of techniques, models and tools, that are used to complete activities and tasks throughout the whole project



System Development Methodologies, Models, Tools, and Techniques

- Methodologies
 - Provides guidelines for every facet of system development: What to do when, why and how
 - Specifies an SDLC with activities and tasks
 - Specifies project planning and project management models and reporting
 - Specifies analysis and design models to create
 - Specifies implementation and testing techniques
 - Specifies deployment and support techniques
- Other term used is *System Development Process*

Methodologies, Models, Tools, and Techniques

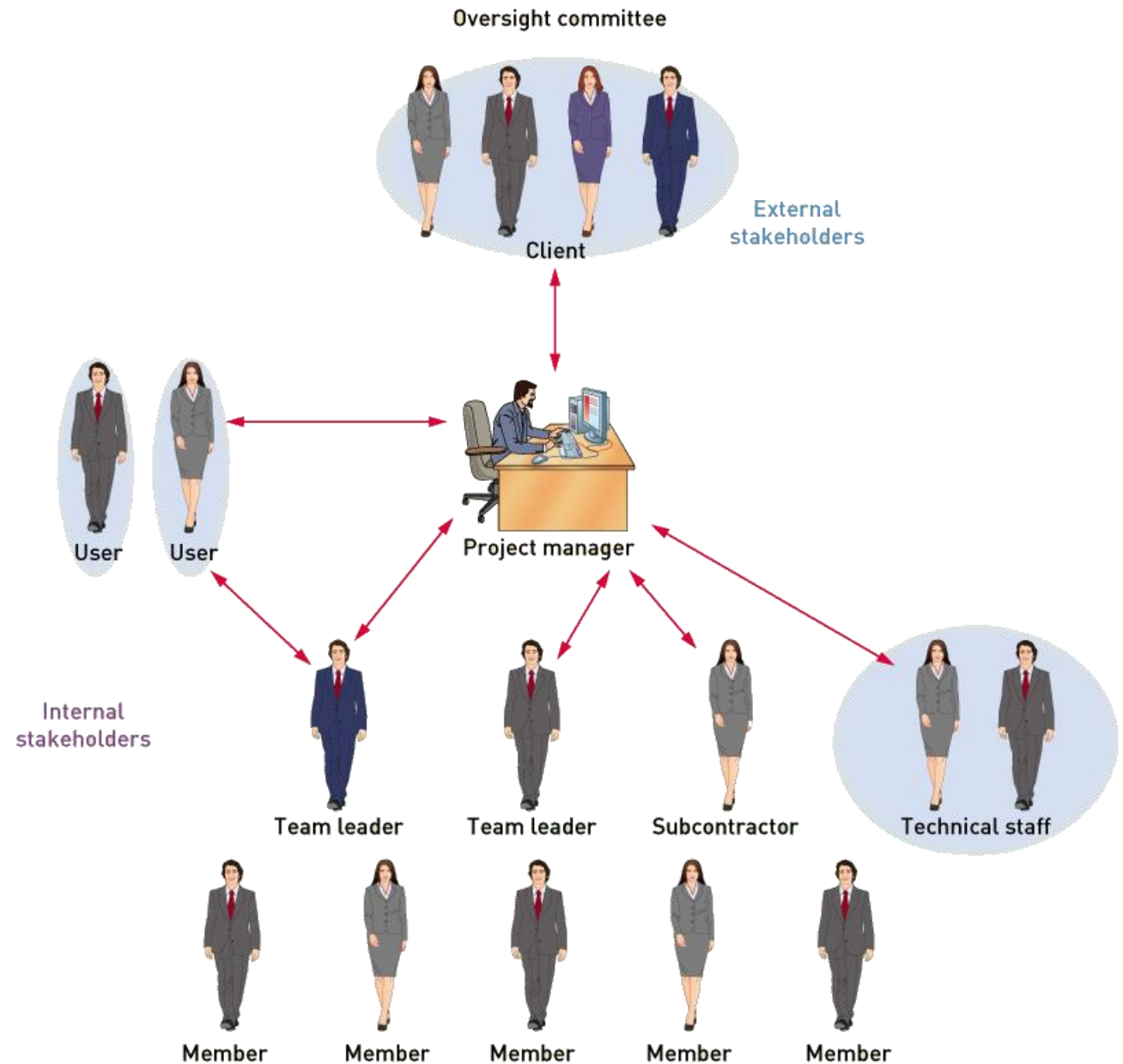
- Model
 - An abstraction of an important aspect of the real world.
 - Makes it possible to understand a complex concept by focusing only on a relevant part
 - Each model shows a different aspect of the concept
 - Crucial for communicating project information

Methodologies, Models, Tools, and Techniques

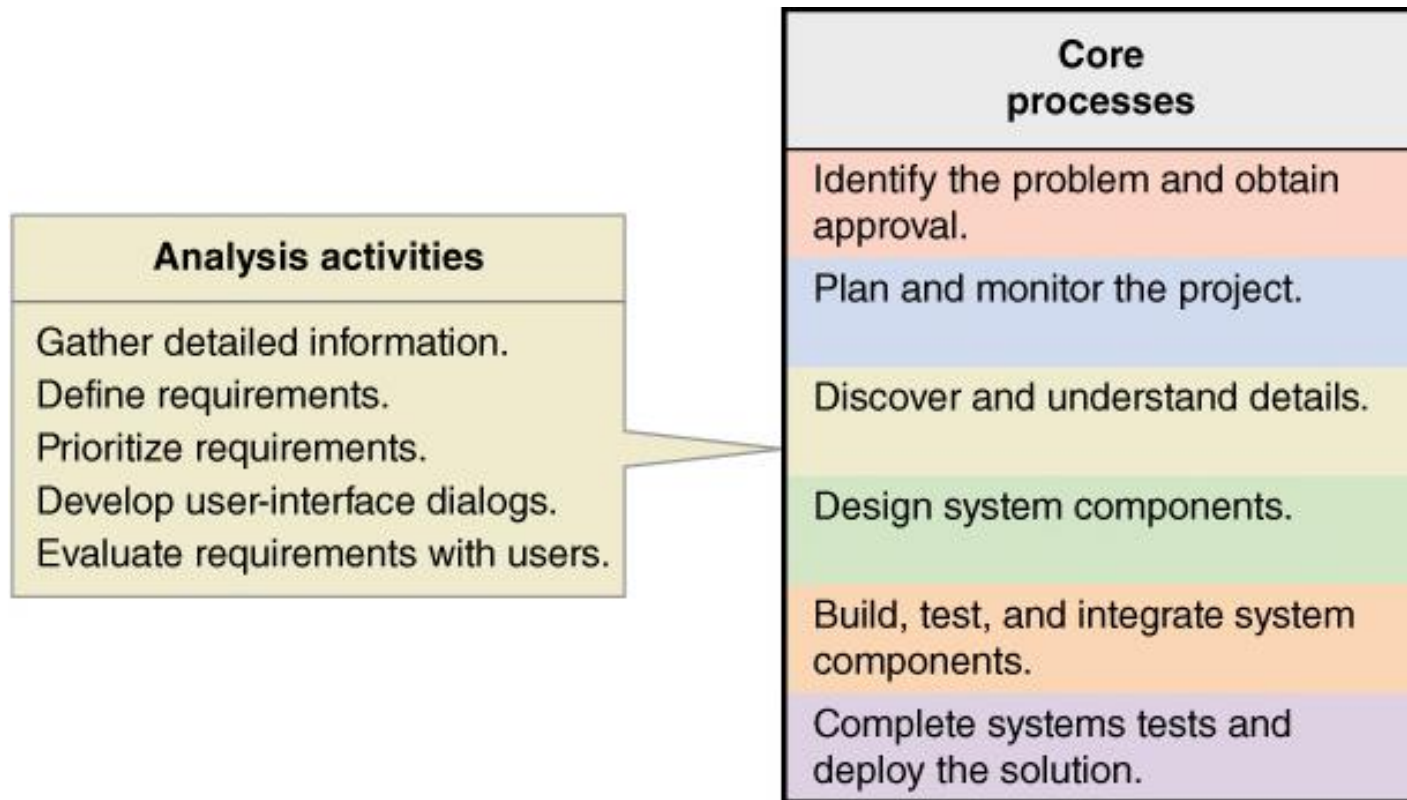
- Tools
 - Software applications that assist developers in creating models or other components required for a project

Project management application
Drawing/graphics application
Word processor/text editor
Visual modeling tool
Integrated development environment (IDE)
Database management application
Reverse-engineering tool
Code generator tool

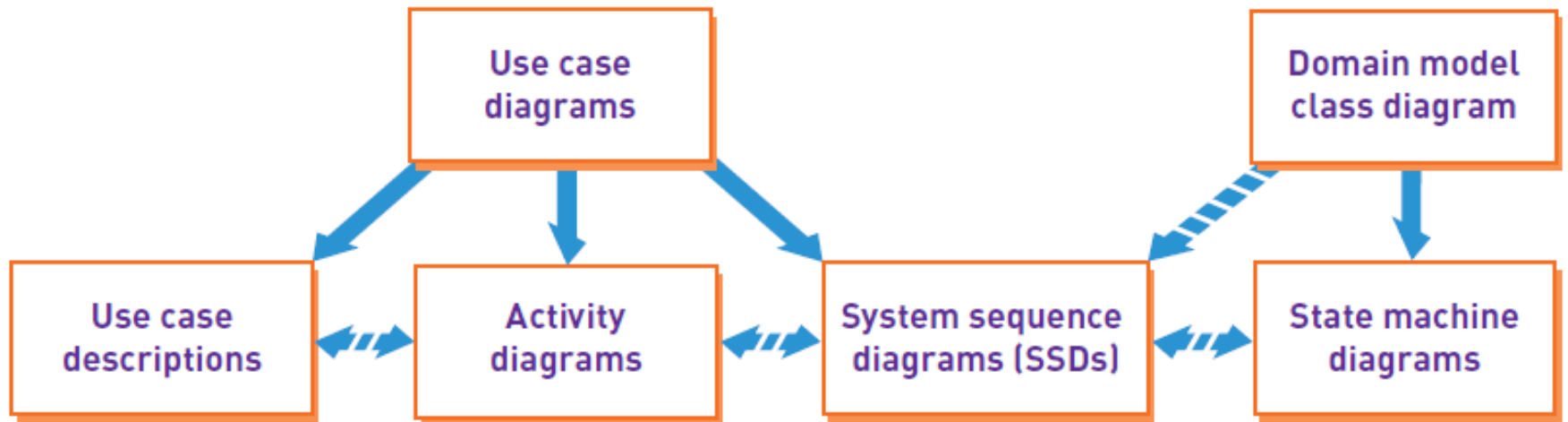
Stakeholder and stakeholder management



System Development Life Cycle (SDLC)



Requirement Models



Understanding Users

- Allows the development of Use Cases:
 - An activity that the system performs, usually in response to a request by a user
- Analysts decompose the system into a set of use cases (functional decomposition)
- Two techniques for Identifying use cases:
 - User goal technique
 - Event decomposition technique
- Name each use case using a Verb-Noun structure

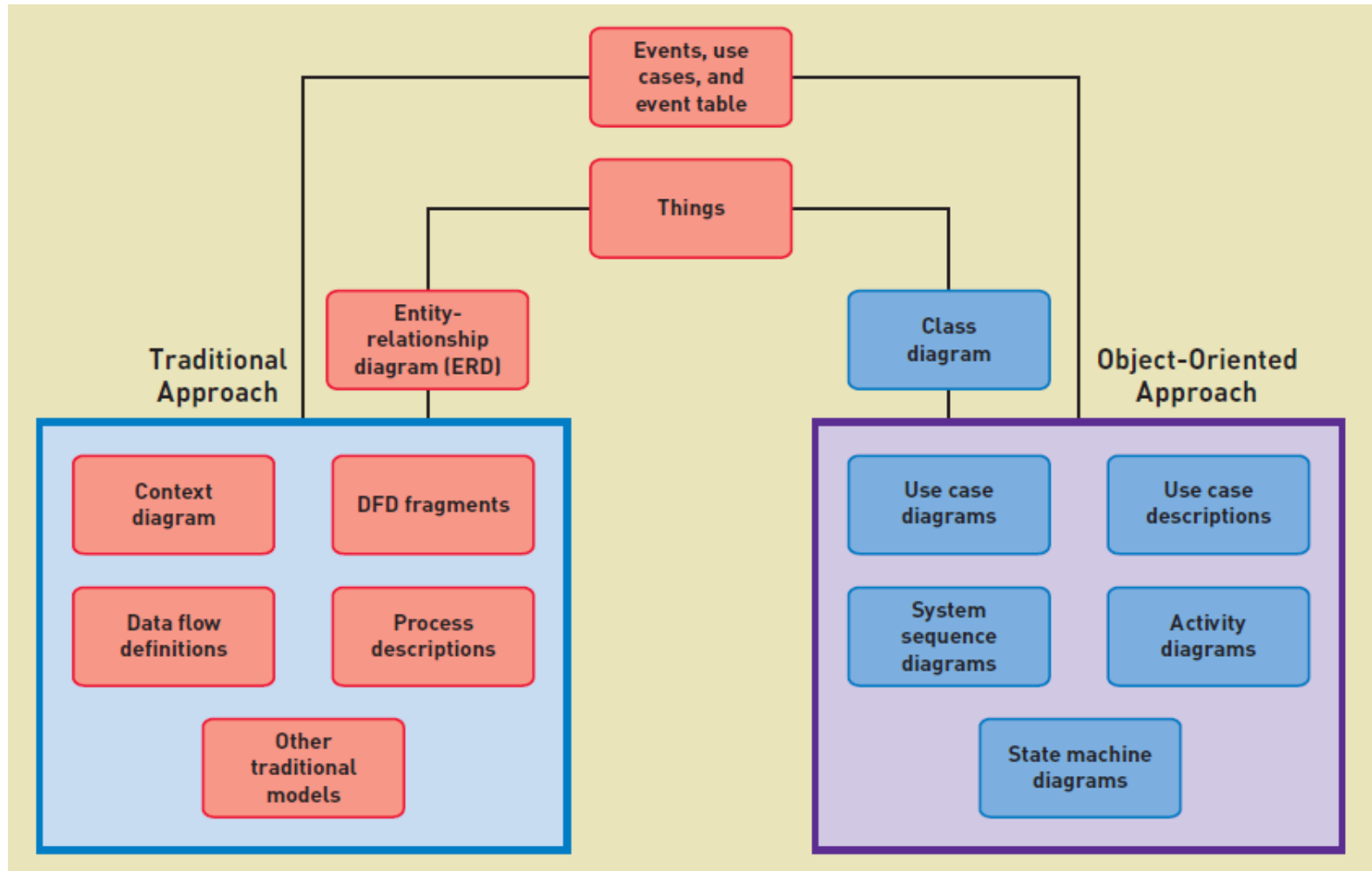


Domain Modelling

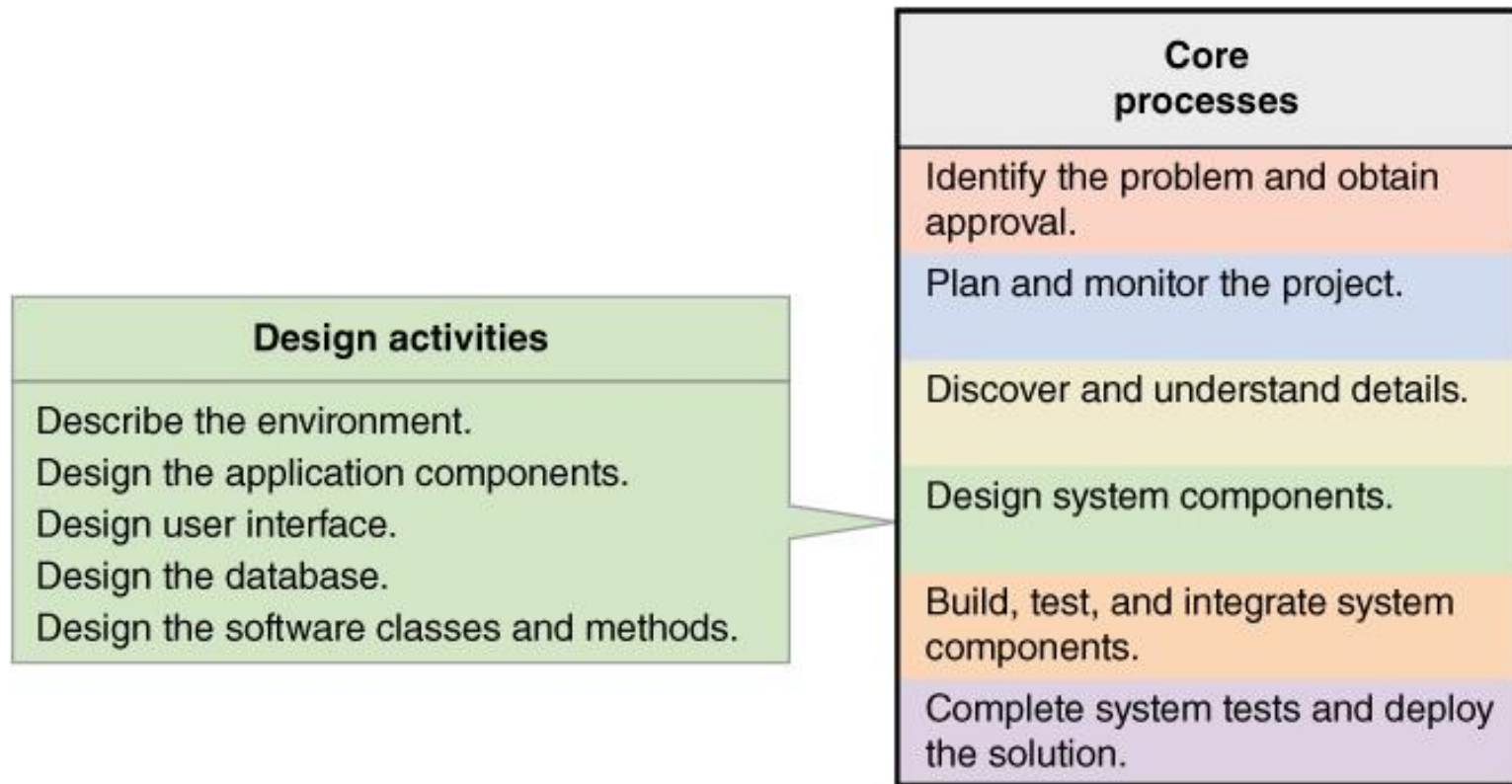
- Identifying the ‘things’ or ‘entities’ that the system should remember in order to fulfil its functionalities.
- Two techniques to build the problem domain:
 - Brainstorming Technique
 - Noun Technique



Requirements Models for Traditional vs. OO Approach



System Development Life Cycle (SDLC)



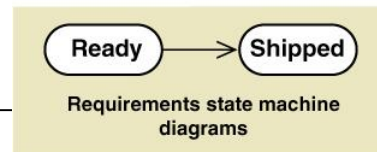
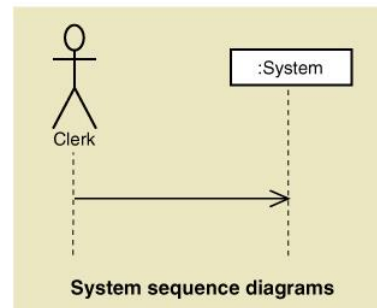
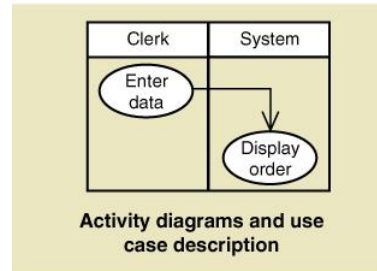
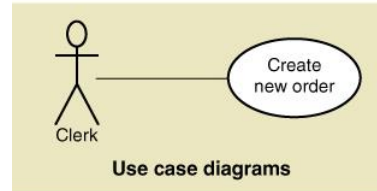
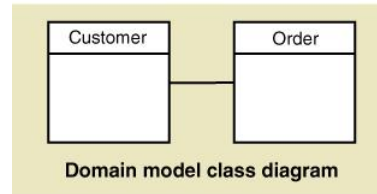
System analysis vs. system design

- Some points:
 - Analysis is fact finding and modeling
 - Design is modeling to specify how system will be implemented
 - Design is bridge between analysis and implementation
 - ... (see lecture slides and textbook)

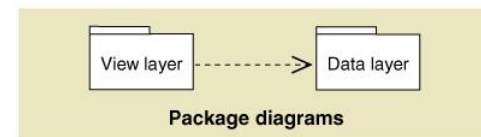
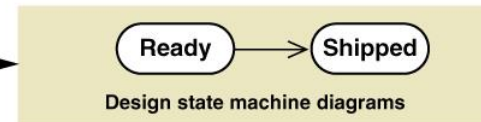
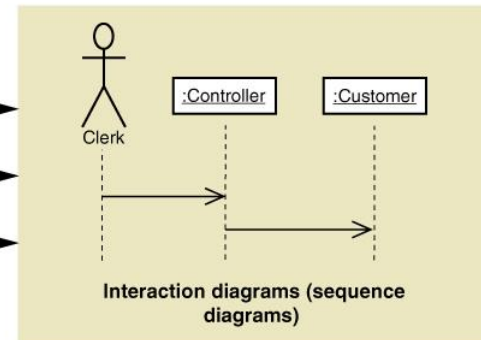
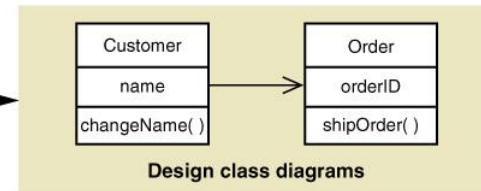
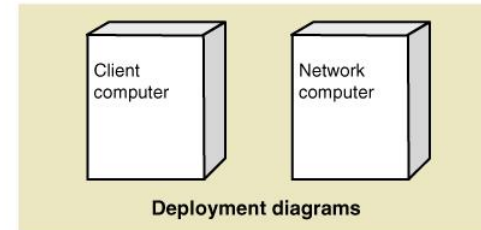
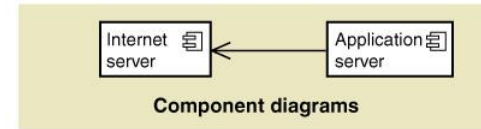


Analysis and design models

Requirements models



Design models



Final Assignment



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Final assignment

- Final assignment
 - instead of usual final exam
- Weight: **30%**
- Individual assignment
 - To be released during exam period (20 June to 2 July)
 - Watch closely for announcement on Moodle
 - To be completed within 24 hours

